

A Usability Study on: A Toss Juggling Website for Physical Education Teachers

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About Me

- Bachelor of Science in Physical Education K-12
- 7th year teaching in the Summer Sports program at Punahou School
- Previously taught High School PE and sports classes at Mid-Pacific



Poll Question

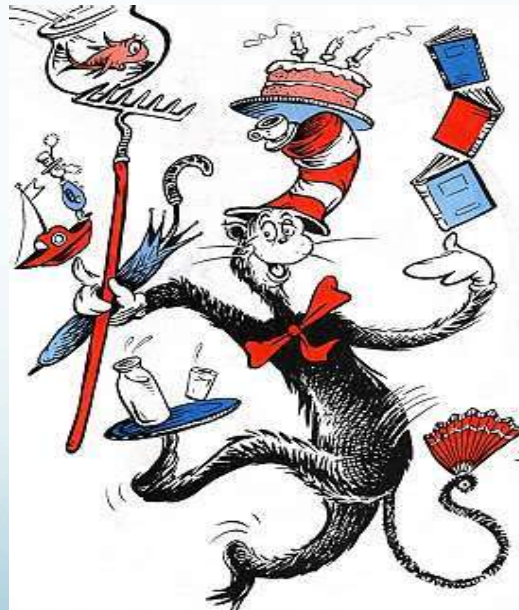
Please select YES or NO using the polling feature.



Does anyone know what toss juggling is?

What is Toss Juggling?

- The throwing and catching of objects where there are more objects than there are hands
- Objects are thrown or tossed into the air in an effort to be caught and kept off the ground



The Cat in the Hat
by Dr. Seuss

Poll Question

Please select YES or NO using the polling feature.



Does anyone have toss juggling experience?

Research Studies

Top Benefits of Juggling

1. Increases gray and white matter in the brain
2. Sharpens focus and concentration
3. Improves coordination

Research Studies

Learning to juggle leads to changes in the white matter of the brain, an Oxford University study has shown.

'We have demonstrated that there are changes in the white matter of the brain – the bundles of nerve fibres that connect different parts of the brain – as a result of learning an entirely new skill,' explains Dr Johansen-Berg.

But there is a 'use it or lose it' school of thought, in which any way of keeping the brain working is a good thing, such as going for a walk or doing a crossword.

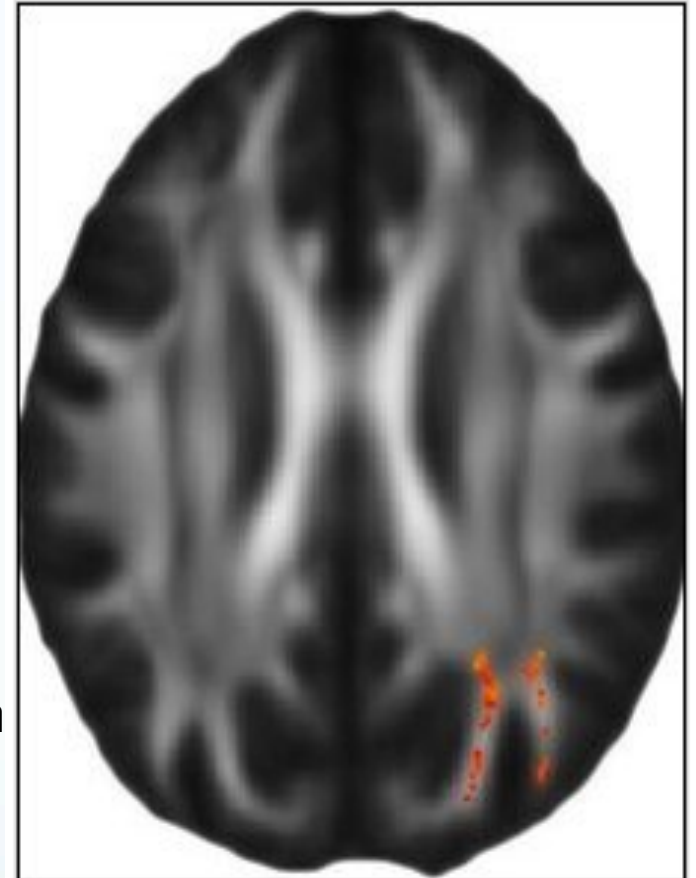
University of Oxford. (2009, October 17). Juggling Enhances Connections In The Brain. *ScienceDaily*. Retrieved from <http://www.sciencedaily.com/releases/2009/10/091016114055.htm>.

The scientists studied a group of 24 healthy young adults, none of whom could juggle.

The scientists saw a 5% increase in white matter - the cabling network of the brain.

At the six week point, a 5% increase in white matter was shown in a rear section of the brain called the intraparietal sulcus for the jugglers.

Juggling increases brain power. (2009, October 12). BBC News. Retrieved from <http://news.bbc.co.uk/2/hi/8297764.stm>.



- ♦ The red area shows the part of the white matter of the brain that is enlarged by learning to juggle
- ♦ It is in the intraparietal sulcus at the back of the brain

Purpose

- Evaluate the ease-of-use, learnability, and user satisfaction of a toss juggling website for 6th-10th grade PE teachers to implement into their classes
- Due to the lack of resources available to self-learn toss juggling a website was created
- Created for PE teachers in an effort to teach juggling and inform educators of its benefits

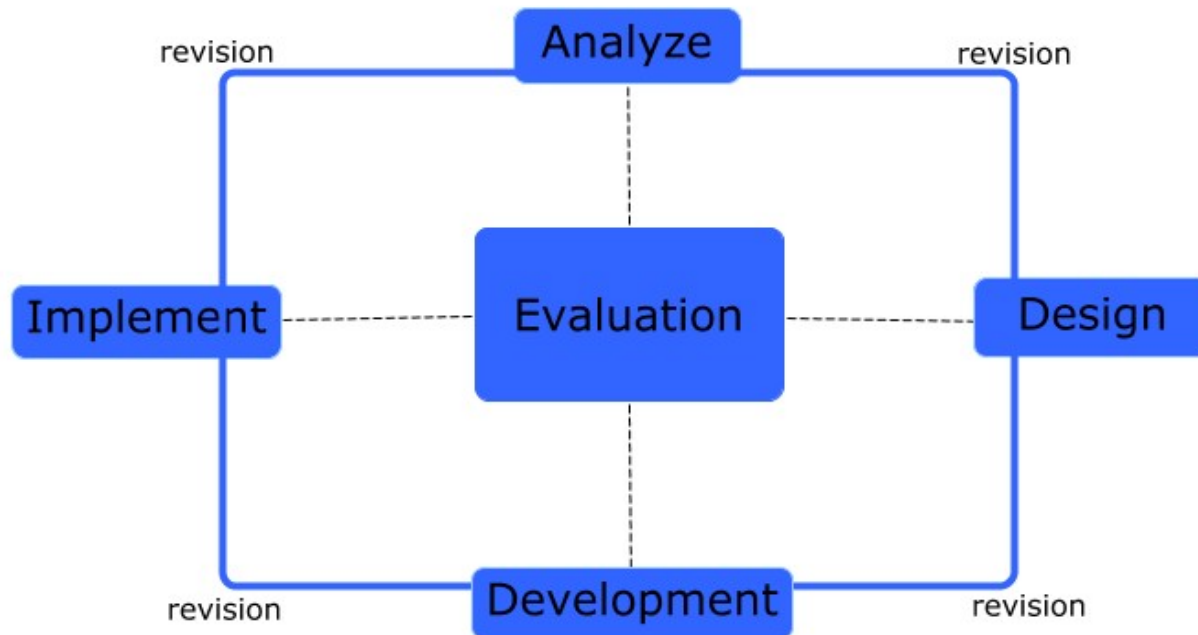
Goals

- Improve the overall design and content of a toss juggling website for PE teachers
- Evaluate the design features and content so that improvements could be made to the site
- Make the website useful for teachers of specific middle and high school grade levels

Research Question

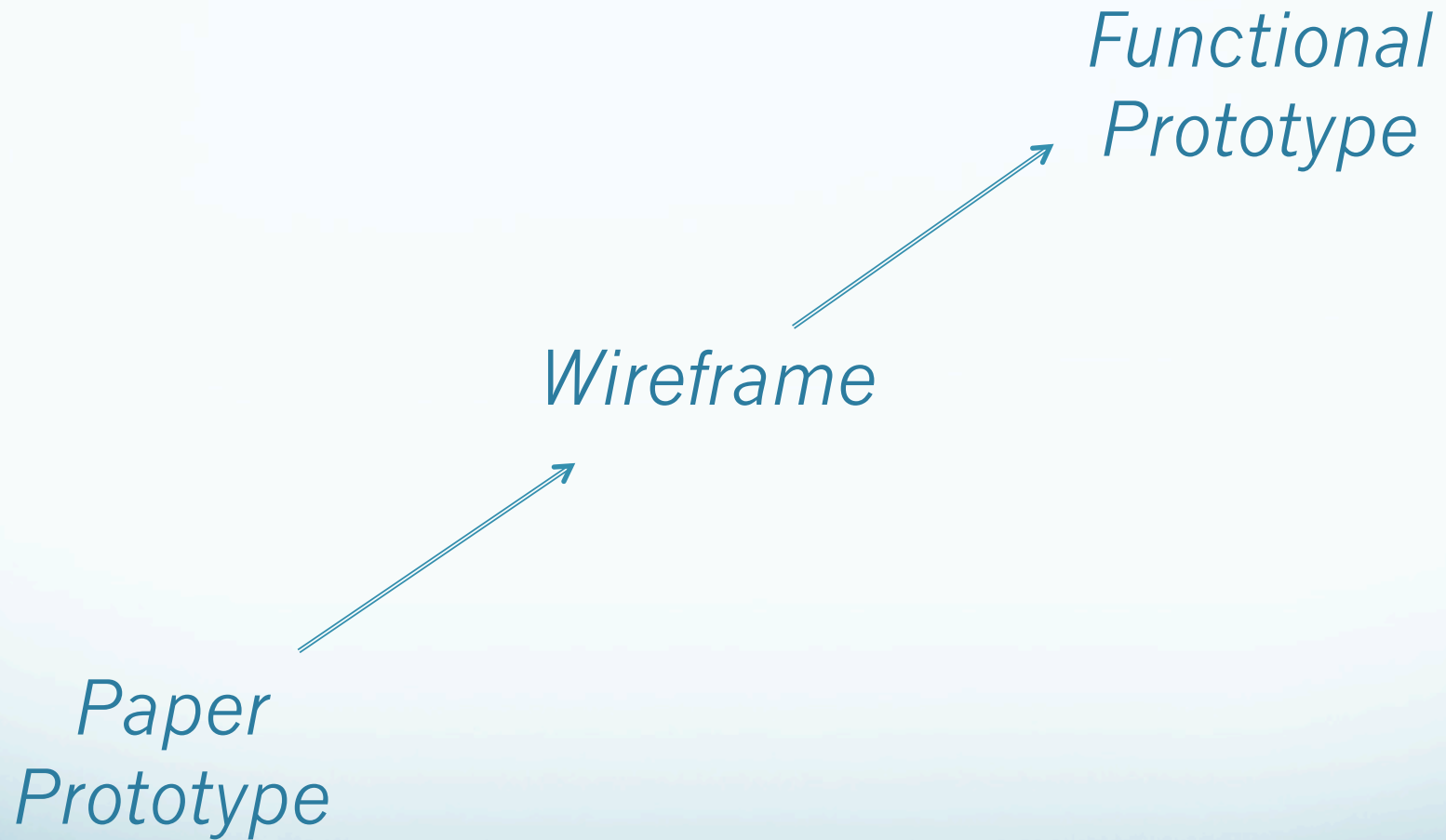
How did the interface design affect the user's ability to easily navigate on the website to find specific juggling information?

ADDIE



Wikimedia Commons. (2014). ADDIE Model.
Retrieved from https://commons.wikimedia.org/wiki/File:ADDIE_Model.jpg

Design



Functional Prototype

<http://jugglingpeaz.weebly.com/>

HOME

PROPS

SKILLS

BLOG

CONTACT

REFERENCES

LESSON ACTIVITIES

VIDEOS

Toss Juggling for PE Teachers

This toss juggling site provides PE teachers with activities to implement into their classes as well as novice, intermediate, and advanced instructional steps, tips, videos, and juggling benefits.



Homepage

The top 3 benefits to juggling

1. Increases Gray and White Matter in the Brain

Studies show that due to initially learning to juggle the 3-ball cascade is correlated with an increase in gray matter, whereas further improvement of the skill over time due to training does not seem to alter brain structure. Studies show that the aging brain is able to retain its neuroplasticity in that brain power can be enhanced with new experiences or tasks. Therefore, the brain is able to form new neural connections- pathways and synapses. These finds may have a significant impact on coming up with new treatments for neurological diseases such as multiple sclerosis where neural pathways become degraded.

2. Sharpens Focus and Concentration

Juggling engages your problem-solving skills. It helps you focus and direct attention better for different tasks and in many aspects of your life. Juggling has both mental and physical benefits.

3. Improves Coordination

Juggling is beneficial to all age groups and body types. Juggling has positive affects on all ability levels from the non-athletes to athletes and from people of elementary age to over senior citizen age. It may be easier for some athletes to perform the juggling skills but these individuals can even take their coordination to higher levels by learning new patterns and moves.



Jugglers refer to the objects they juggle as props. There are many different kinds of props. Props can come in different sizes, shapes, colors, and materials. The most common are balls, rings, and clubs. I have also seen scarves gain popularity in schools for students at the elementary and middle school levels. Beanbags are also great for novice level jugglers. The square shaped beanbags are the first props I started with as a child and are still my favorite to this day. I will include videos on most props that will be most beneficial to teaching juggling. The bottom of the page includes links to three different juggling equipment websites so you can purchase your props.



Scarves

- These scarves are lightweight and are made of woven nylon
- Due to their lightweight and float I suggest this as the first prop to learning the fundamentals
- This is easiest prop to toss and catch with listed on this site due to its slow fall
- I suggest using the 16"x16" scarves but they come in other sizes such as 24"x24"



Beanbags

- They are great for beginners in learning the fundamentals as well as excellent for learning to juggle three or more
- Some are made from a polyurethane coated fabric for durability and others are sewn and tightly packed with birdseed
- They are moderate in weight- not too heavy but not too light
- They are an ideal weight for juggling and will not bounce or roll



Juggling Skills

Start with the recommended props in the following order: scarves, beanbags, juggling balls or tennis balls, rings, and lastly clubs. Complete all the steps 1-4 before moving onto the next prop. This section's instructions are directed toward using beanbags, and juggling balls or tennis balls. The instructions are the same for the other props but the grip on the props is slightly different. Scarves you hold with your fingers rather than cradling in your hand.

Beginner Skills

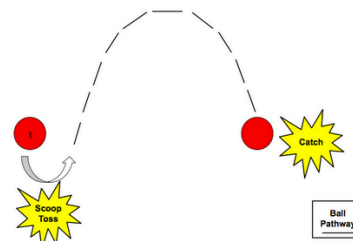
The numbered instructional steps below do not match with the diagram numbers. Read the instructional steps first then view the images.

Step 1: The Drop

1. Take all three props toss them into the air and let them all hit the ground with no effort to catch them. This is the called THE DROP.
2. Practice the drop a few times to familiarize yourself because this will likely occur often as a beginner juggler.

Step 2: The Toss

1. Cradle a ball in the center of your dominant hand.
2. Stand relaxed with elbows near your body and hands about waist height.
3. Throw "scoop toss" ball one up at about eye level in an easy arc from one hand to the other and about as wide as your body.
4. Repeat this back and forth continuously in one motion.





Lesson Activities

The tasks below consist of exercises and complete patterns to teach 6th through 10th grade students juggling. I suggest having students start with individual basic tasks then individual challenges then partner tasks and challenges. The goal would be for students to gain confidence and have fun while still obtaining the benefits and feeling challenged. Due to a variety of skill levels you may find the need to work with students having more difficulty and challenge the more proficient students with advanced skills/tricks. The main way to improve is through practice.

Partner Tasks and Challenges

Warm-Up Exercise #1

1. While you're holding a beanbag in each hand, have your friend toss you a third- into your left hand
2. Before it lands, do an exchange and begin your own juggling
3. After a few moments juggling on your own, throw her one back- from your right hand- and stop

Warm-Up Exercise #2

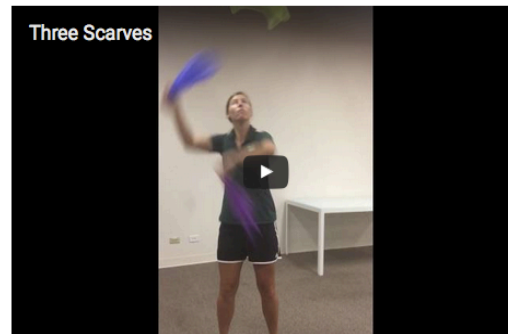
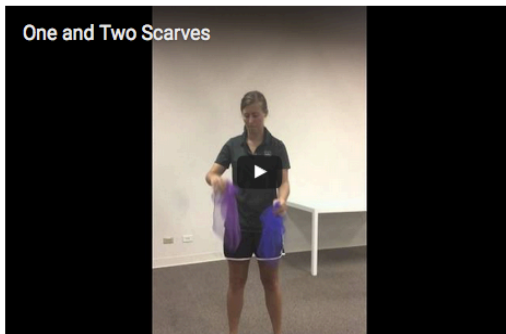
1. Start by holding three beanbags and giving your friend a fourth
2. Begin juggling and continuing and then on "three" make the toss over to your friend who- at the same time- should feed your hand with a nice easy toss
3. Your friend won't be juggling during this exercise, her job is strictly to catch your one toss while feeding you another
4. If it's done smoothly, you can juggle along without skipping a beat

Partner Passing

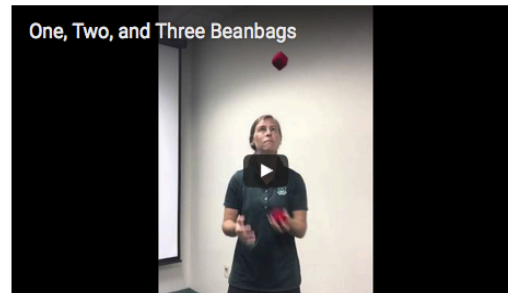
You will need a partner, an open space, and at least two props.

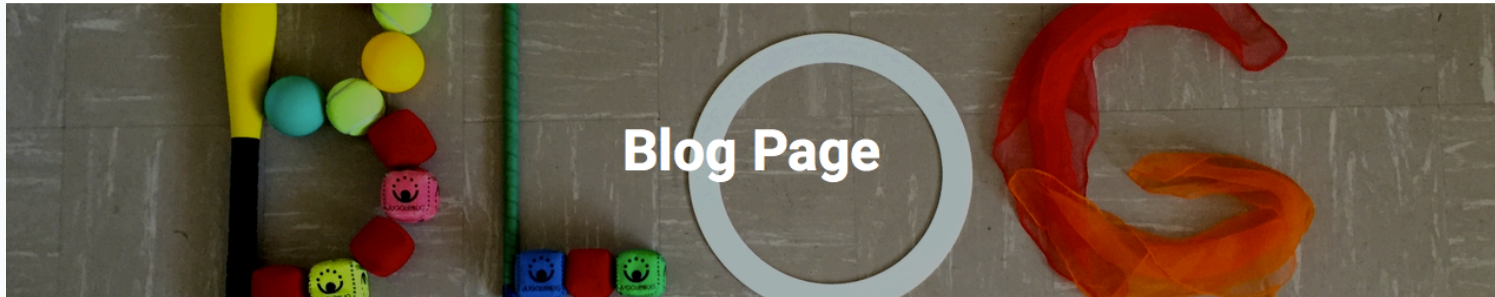


One, Two, and Three Scarves



One, Two, and Three Beanbags





Juggling Routines

3/11/2016 0 COMMENTS

I thought it would be a good idea to include some advanced examples of juggling routines with jugglers of different ages to inspire people of all ages to learn juggling.

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Juggling Routine 4

This video is unbelievable! I thought it was great because Steve juggles for elementary aged students.



0 Comments



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Contact Form

Name *

Email *

Comment *

SUBMIT

Development

- Pre and Post Survey
- Usability Protocol Script- face-to-face usability test
- Set-up checklist



<http://www.susangoodmanbooks.com/wp-content/uploads/2015/10/surveyclicker.jpg>

Tools



Forms



Google Sheets



You Tube



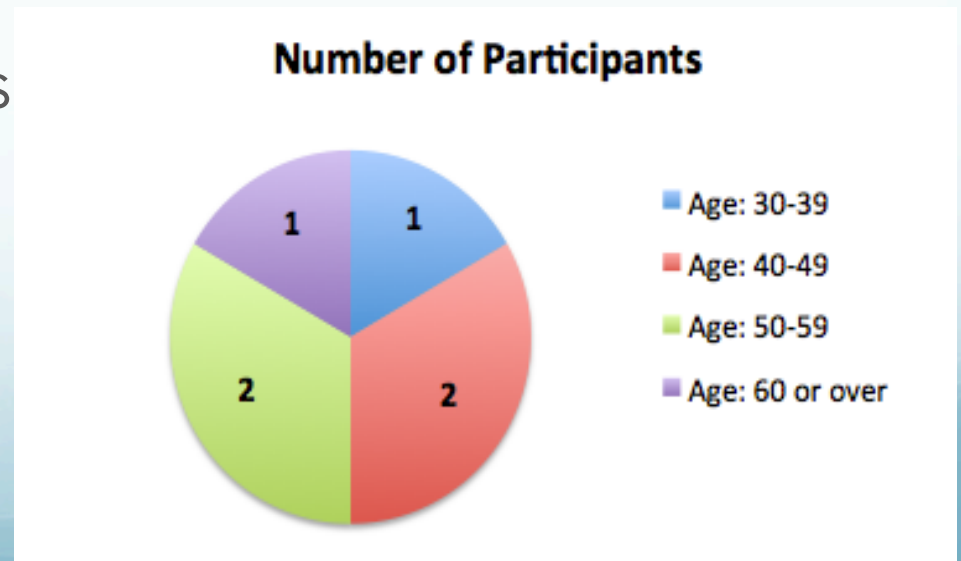
Vaila

Mac Screen Capture software

Implementation

Participants

- 3 participants for both Round 1 and 2 for a total of 6 participants
- Teachers (private school) over the age of 18
- Four males & two females
- Variety of age groups



Pre and Post Survey Questions

- Demographics, age, gender, as well as confidence using technology, and most frequently used technology device at work
- Juggling experience
- Previous implementation into classes
- Confidence in juggling and teaching it

Usability Protocol

Question #	Scenarios	General Questions and Prompts
1	You are a beginner/novice juggler, where would you navigate to first to learn the basics of toss juggling?	Do you find the content on this website interesting and does it motivate you to learn juggling or implement it into your classes. Please explain.
2	You are inexperienced with juggling and not sure what toss juggling is about and the kinds of objects used where would you go to find this information?	What other information do you think is useful/valuable from the website? Can you explain why it would be useful?
3	You are a middle school teacher with little experience with teaching juggling but would like to try juggling yourself. Where on the website would you go to find this?	Which page did you find most helpful or effective in learning about juggling? Who do you think would benefit the most from this website?
4	Your school is emphasizing collaboration in all subjects areas. You decided that with the project adventure unit you would incorporate juggling and try out peer collaboration in your classes. Where would you go to find peer collaboration information to use in your classes?	Would this website be useful if you were looking to learn how to juggle and teach student juggling in grades 6th-10th?

Usability Protocol

5	You have a student that is juggling beyond the intermediate level due to previous experience and is making his way to the more advanced skills. Based off the information provided on the website, where could you find additional tasks that are more challenging? What are some specific skills he could learn that are suitable for his level?	What else would you like to see on the website? Does it look organized? Is it easy to location information? What do you think of the design layout and other features of the website?
6	You have a question about juggling equipment. Where would you go and what could you do to get help or start a conversation?	What is your overall impression of the website layout?
7		Are you able to move from one screen of the website to another quickly in order to find certain information? Explain.

Changes Made

Changed “Skills”
tab to “How To”

Removal of
Drop Down
Menu

HOME PROPS SKILLS BLOG CONTACT REFERENCES

LESSON ACTIVITIES

VIDEOS

Toss Juggling for PE Teachers

This toss juggling site provides PE teachers with activities to implement into their classes as well as novice, intermediate, and advanced instructional steps, tips, videos, and juggling benefits.



A Change Made After Round One

Homepage Video

Welcome

Watch this stunning juggling performance using a variety of different props.



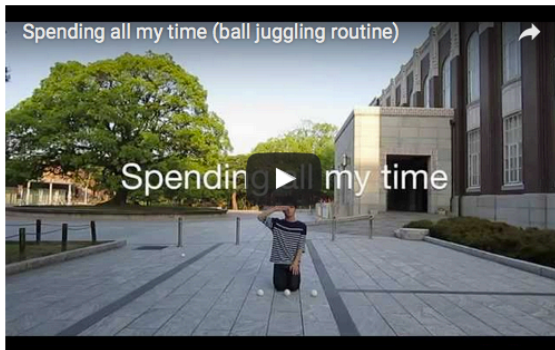
A little about toss juggling

Toss juggling involves the manipulation of one or many objects by using one or many hands and trying to keep them off the ground. Juggling is a repetition of controlled throwing and catching and involves much focus and concentration. The person performing the juggling is called the juggler. The juggler refers to the objects as props.

A Change Made After Round Two

Juggling Routine 1

This video is outstanding! I think this video will be engaging for students at the middle school high school level.



Juggling Routine 2

The music in this video is slow as well as the performance in the beginner but the pace picks up. I have never seen some of the tricks he performs. His performance is outstanding!



Development of the Blog Page

Juggling Routine 3

Here is another incredible video with kids juggling. This video shows partner juggling which is a great example of how you can incorporate partner or group juggling into a routine.



Other Changes

- Added equipment website links
- Links to research and equipment now open in the same tab NOT in a new tab
- Enlarged text on the Lesson Activities page
- Added advanced instructional videos and reorganized content
- Renamed some headings
- Changed props tab to “Equipment”



Flower Sticks

- Less common but very fun
- I was first introduced to flower sticks when I coordinated Children and Youth Day for the Hawaii Association for Health, Physical Education, Recreation & Dance
- Two shorter sticks are used to toss up one larger stick to perform maneuvers or tricks

EQUIPMENT SITE LINK #1

EQUIPMENT SITE LINK #2

EQUIPMENT SITE LINK #3

**Equipment
Links**

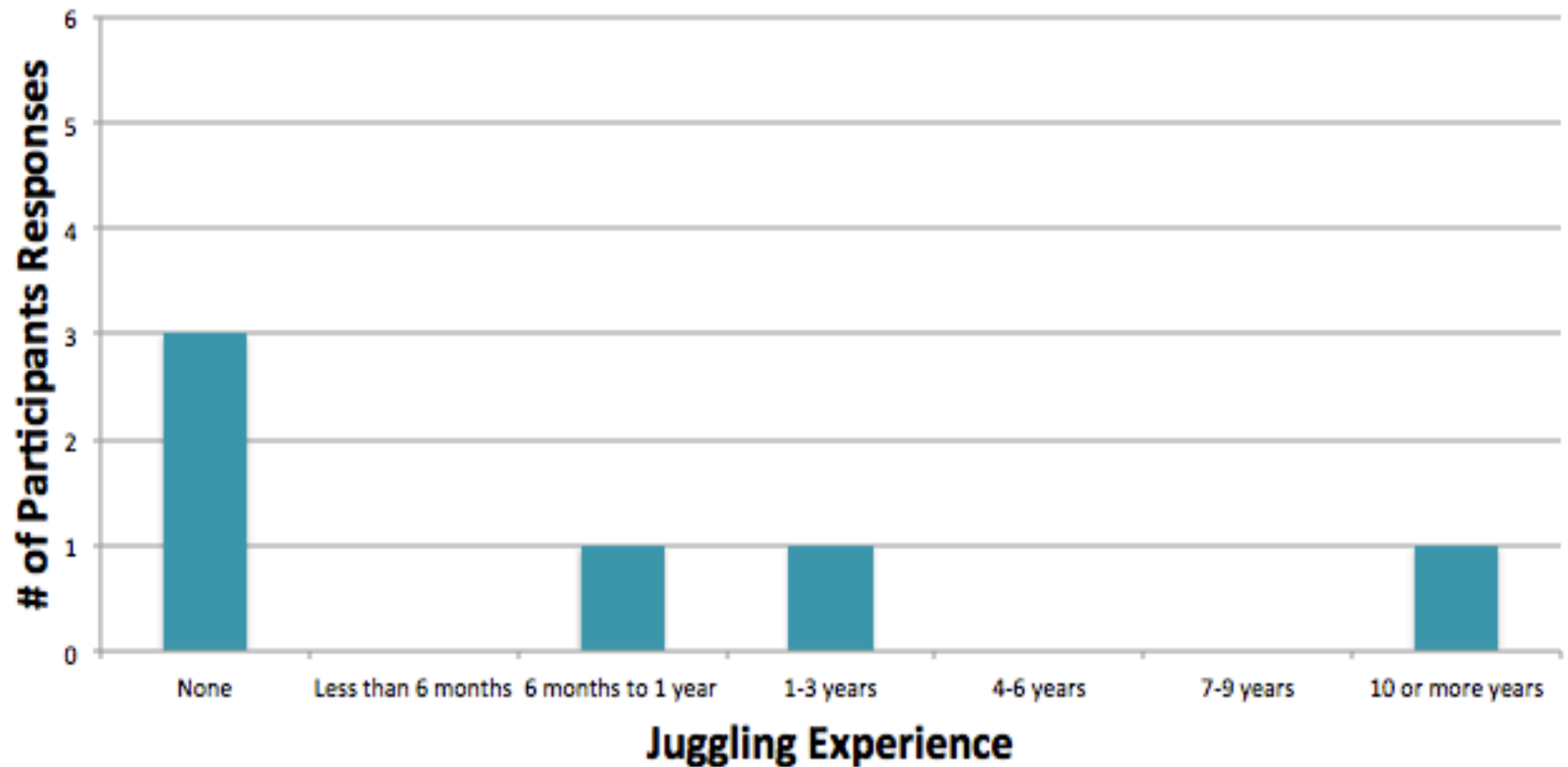
**Advanced
Instructional
Videos** ➡➡



Results

Pre Survey

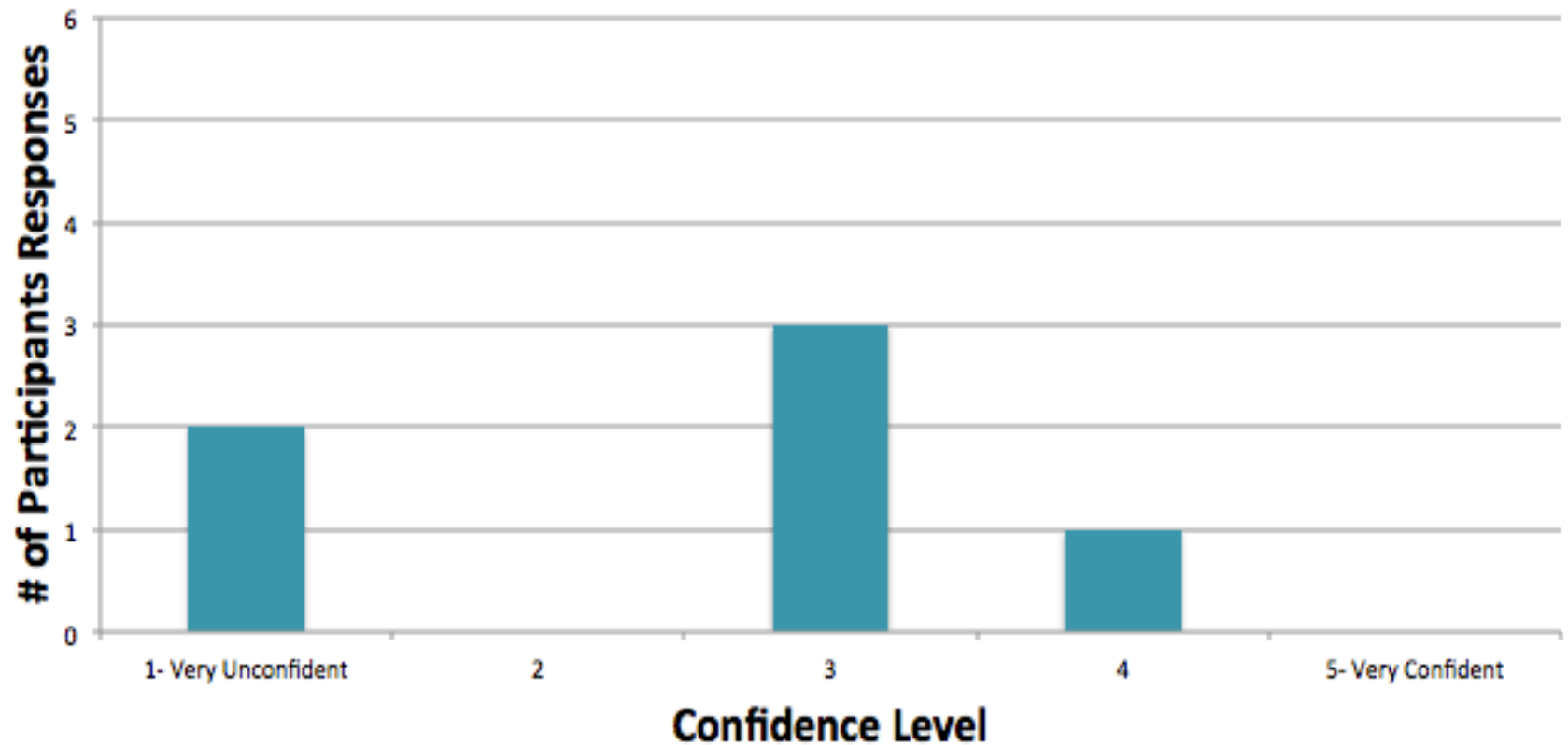
How much juggling experience do you have?



Results

Pre Survey

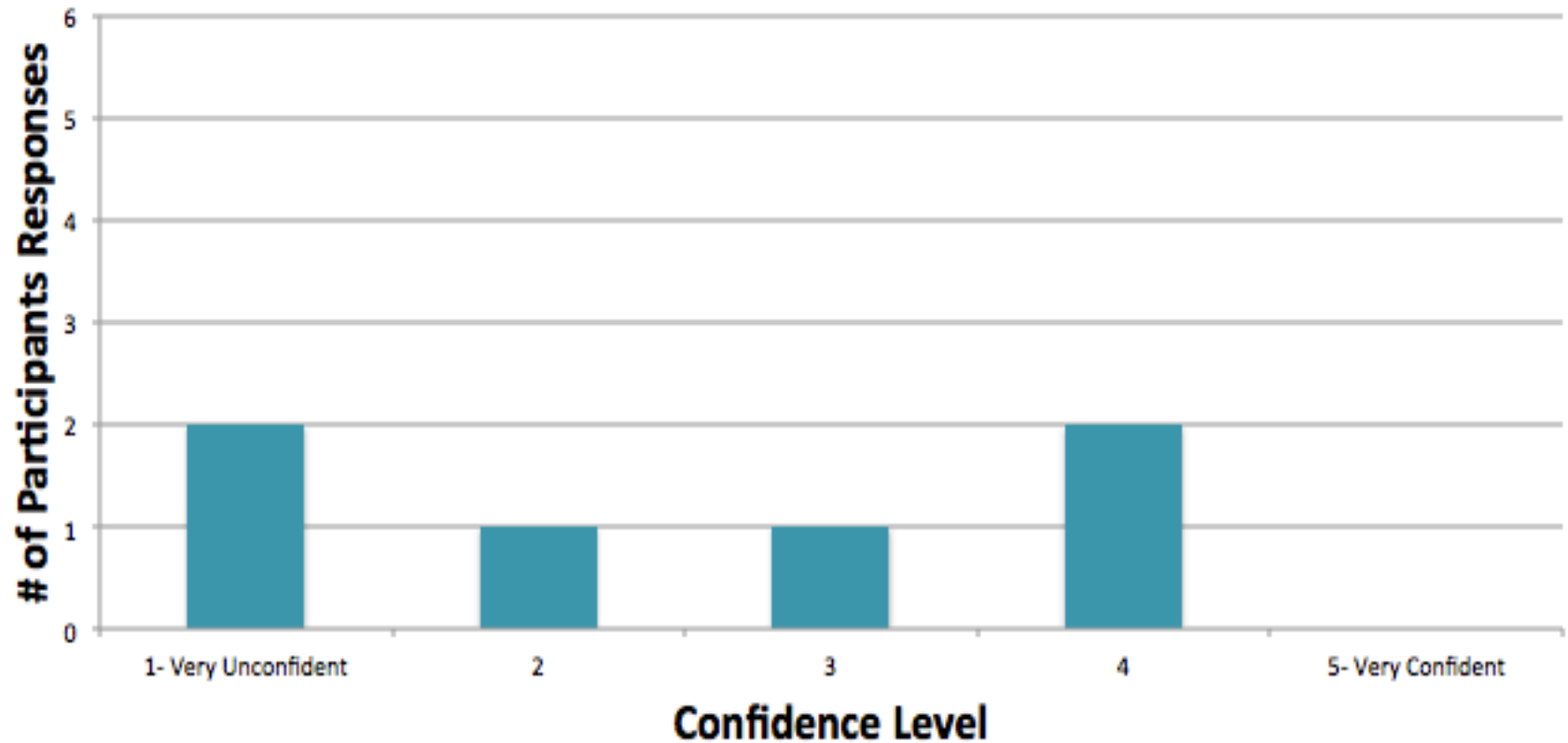
Rate how confident you feel when juggling



Results

Pre Survey

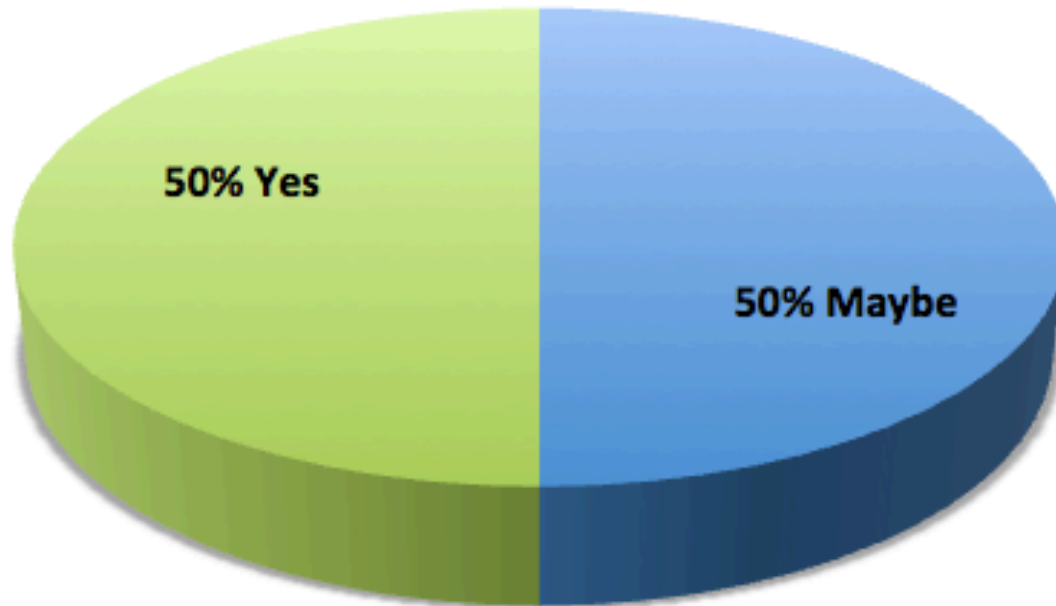
Rate how confident you are teaching juggling



Results

Pre Survey

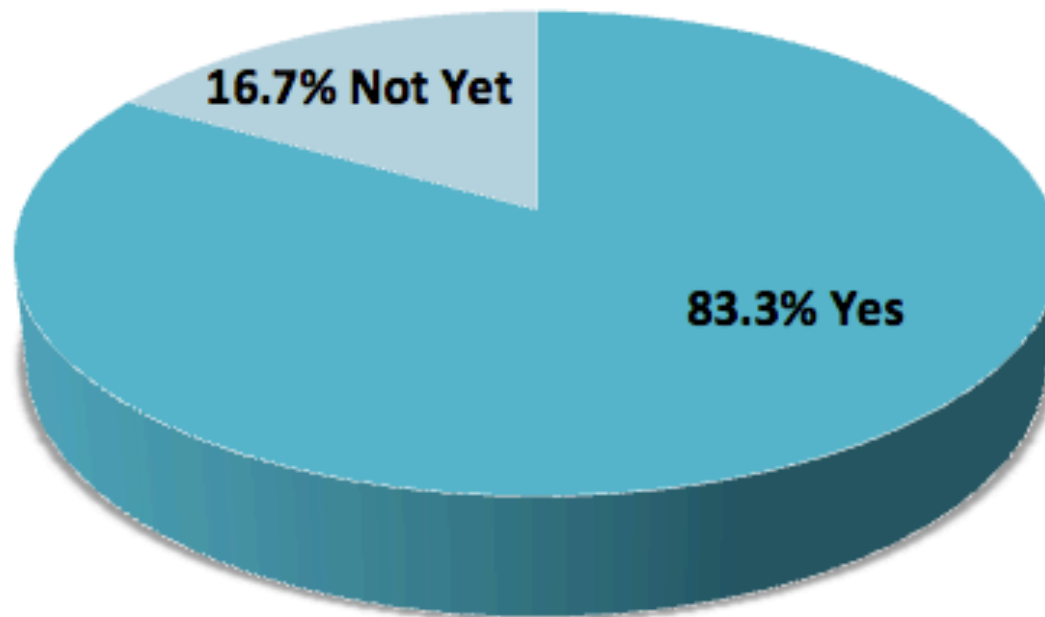
If you were provided a website about juggling would you then consider implementing it into a lesson/unit



Results

Post Survey

Do you now feel more confident to teach juggling based on the website content?



Post Survey Results

- 83.3% of participants feel more confident to teach juggling based on the website content
- After participating in this study **ALL** participants would use this website for a juggling lesson and/or unit
- 83.3% are unsure whether they will implement juggling lesson activities into their classes

Post Survey Website Navigation, Design, and Content Questions

- Ease of navigation to locate content
- Difficulty of performing tasks and scenarios to find specific information
- Quality of content
- Website helpfulness of images and videos
- Satisfaction with visual appearance of the overall website
- Satisfaction with the design layout of information

Post Survey Website Navigation, Design, and Content Questions

- One participant gave a response of (2) for helpfulness of images and videos on a 1-5 scale (1) not helpful and (5) very helpful
- The same participant gave responses of (3) for all other questions in that post survey section
- All other participants gave responses of (4) and/or (5) in this section

Implications

- There may be other factors contributing to participant responses
- More research on why juggling is not implemented much into classes
- Teachers not taking the time to incorporate juggling into classes
- Lack of juggling equipment at some schools

Suggestions

“Videos should have their own tab as I almost didn’t see them in the drop down menu.”

“Some sort of example form or ideas that would cover assessment of juggling skills as students develop.”

“Matching the videos with the skills on the same page would make it easier so I wouldn’t have to scroll back and forth between two or three tabs.”

Comments

“I thought the website was clean, aesthetically pleasing, and I liked the photos used for each title page on each tab because it used the juggling props to spell out the titles of each tab/page. I found that to be clever and as a user of the website that really appealed to me.”

“When seeing the first video of juggling on the homepage I became excited about juggling and remembered how fun it is to juggle.”

Future Modifications

- Videos more instructional
- Move all videos to the How To page
- Create an example juggling assessment checklist

Reflection

- Would have liked two more participants
- Participants provided a lot of information during the testing when asked to browse on their own
- Surprised at the number of participants who had difficulty navigating when clicking on a link
- Overall satisfied with the testing results

Thank You

- Dr. Leong, Dr. Fulford, and all my LTEC Professors
- CFs- Cheryl and Janet L.
- My Family

